

Hydraulic power

steering

Bosch Automotive Steering is a part of the Bosch Group which specialises in steering systems, and the manufacture of car parts. As with any engineering company, testing is an essential part of design and manufacture, and the company wanted to invest in a new hydraulic power supply to more efficiently provide the required flows to its range of steering testing equipment. Thanks to its experience and innovation in hydraulics, Bosch Rexroth was asked to provide the new hydraulic power supply solution.

In the past, Bosch Automotive Steering had a decentralised approach to testing, where they had multiple test centres and facilities in different places. The business decided that a more efficient approach would be to bring all testing equipment under one roof, and in order to make that work a new hydraulic power supply was essential.

All testing equipment uses hydraulic power in some way, and each machine is designed to fatigue-test steering components for use in heavy vehicles. These tests need a lot of power, so Bosch Rexroth engineered a central hydraulic system which could reliably supply all of the equipment with the power required. With more than 40 testing units connected, this was a big project, and Bosch Rexroth was able to use its engineering expertise and experience to provide the optimal solution.

PERFECTLY COORDINATED

The scope of this project covered everything from the planning, engineering, project management, installation and commissioning to the training and documentation. Given the relative complexity of the work as a whole, collaboration and efficient working processes were absolutely essential.

“When the customer said they wanted one centralised facility, we were able to show examples and our background in providing central hydraulic power supplies,” says Ralf Bergmann, Head of Sales Testing Technology for Bosch Rexroth. “The customer and our specialists worked together to come up with the specification. We defined the details, and it was a challenge but it all lead to a fantastic solution.”

Thanks to the thorough work in the beginning, as well as the positive collaboration, the entire project took only nine months to complete. This is a real achievement, as the power unit is connected to so many different test systems, and this required 1400 meters of new pipework as well as all of the control systems and smart functions used in the power supply itself.



SMART SUPPLY

Although the power supply was built from standard components, everything has been engineered to the specific needs of Bosch Automotive Steering. In addition, Bosch Rexroth designed this to be able to cope with expanded testing capacity in the future as it can offer increased hydraulic flow. All variables in the project have been customised to ensure the best possible performance for the specific requirements. However, this technology also includes a number of smart features to help improve sustainability and reduce energy consumption.

“This hydraulic power supply can actually adjust its output and energy use according to the load,” adds Ralph Janz, regional sales representative for Bosch Rexroth. “The energy saving concept is based on the use of the A4VSO axial piston pumps with the HS5 digital control electronics. This allows for quick and precise adjustment of the energy supply, resulting in ‘energy on demand’, meaning high energy savings and a lower installed power level.”

So far, there has been no failure or unscheduled downtime, showing that the system is not only extremely efficient, but offers outstanding reliability as well.

ONGOING OPTIMIZATION

The project, and the end result, have been real success stories for both Bosch Rexroth and Bosch Automotive Steering. For Bosch Rexroth, this project provided the opportunity for innovation while working at speed, and showed what can be achieved through effective collaboration and detailed planning. For Bosch Automotive Steering, they now have a reliable, efficient hydraulic power unit which can reduce energy costs and has the capacity to adjust performance as needed.

“It was a real team effort between the customer and Bosch Rexroth,” says Bergman. “The customer is really satisfied. We also have a maintenance contract in place so we can continue to optimise performance while ensuring long-lasting reliability for the customer. The success of projects like this is never because of one or two people, it’s cross team coordination that has to fit together perfectly, and we achieved that. We managed it in nine months and it all worked really well.”